

(12) UK Patent Application (19) GB (11) 2 170 753 A

(43) Application published 13 Aug 1986

(21) Application No 8503576

(22) Date of filing 12 Feb 1985

(71) Applicant
Ronald Roberts,
5 Melrose Close, Whitefield, Manchester M25 6WZ

(72) Inventor
Ronald Roberts

(74) Agent and/or Address for Service
Michael John Ajello, PO Box 25, Stockport,
Cheshire SK3 0XW

(51) INT CL⁴
B23B 39/16 7/06

(52) Domestic classification (Edition H):
B5L 43Q
U1S 1714 B5L

(56) Documents cited
US 3246544

(58) Field of search
B5L
Selected US specifications from IPC sub-classes B23B
B23D

(54) Joinery drilling tool

(57) The invention provides a tool for cutting a slot in doors for receiving locks etc. The tool comprises a drill having a geared drive shaft (1) meshed with a gear cluster (4, 5, 6, 7, 8, 9 and 10), each gear of the cluster being keyed to a respective drill bit (2, 13, 14, 15, 16, 17 and 18), the arrangement being such that each drill can be rotated for drilling the slot by rotation of the drive shaft by, for example, a power drill.

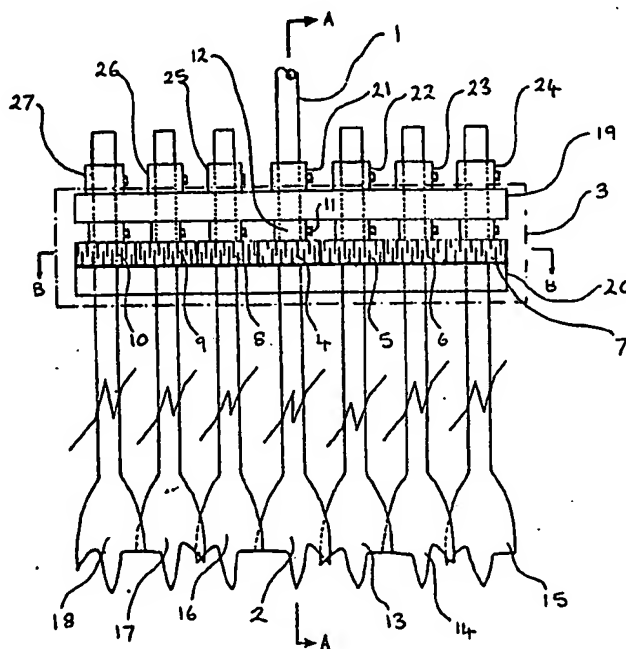


Fig. 1

GB 2 170 753 A

2179753

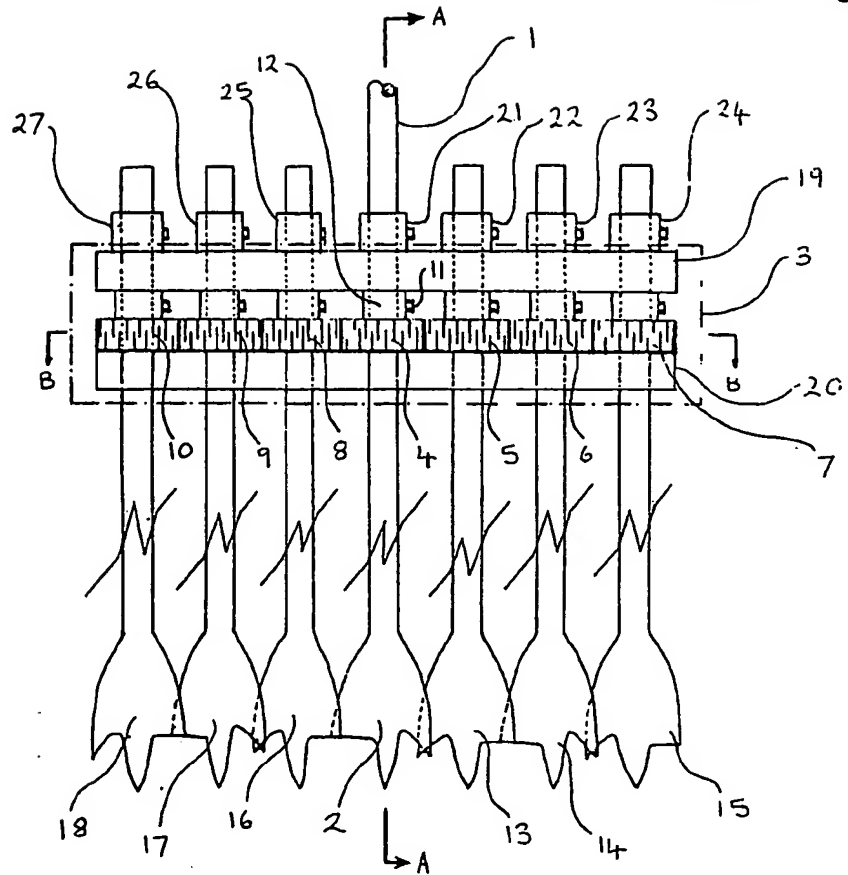


FIG. 1

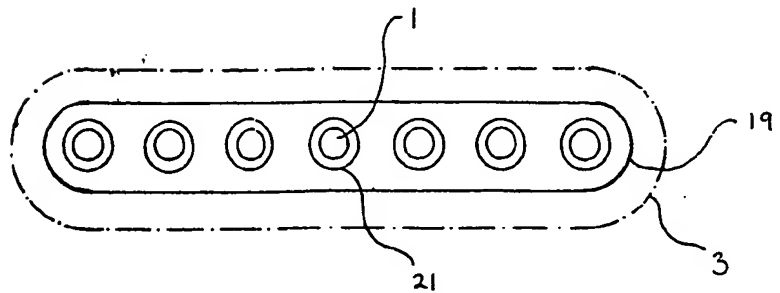


FIG 2

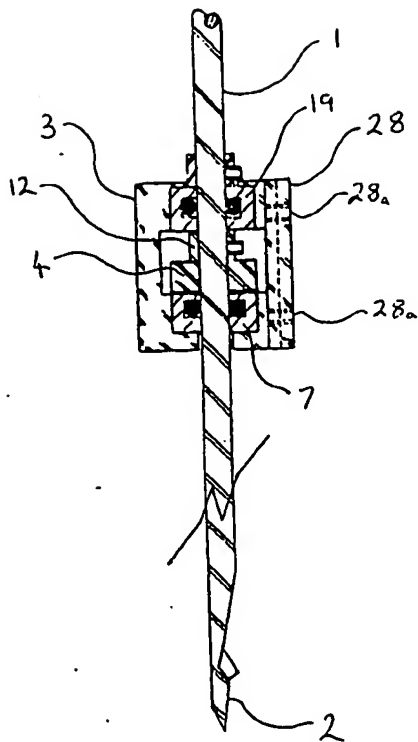


FIG. 3

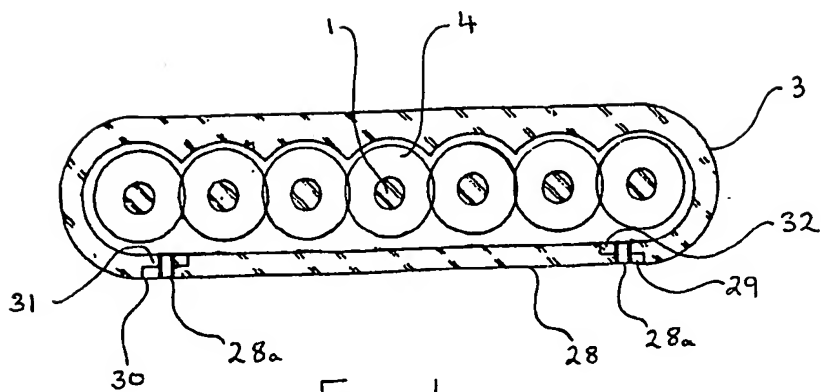


FIG. 4

SPECIFICATION

Joinery drilling tool

- 5 This invention relates to a joinery drill for cutting out slots in doors etc. such that locks can be received therein.

In fitting a door lock difficulties are often encountered in cutting out a suitable slot in the door for receiving the lock. It is usual to either drill or chisel the required shape but such a procedure can often be time consuming and difficult, particularly if the door remains in situ whilst a slot is being cut. It is an object of the present invention to overcome these disadvantages.

According to the invention, there is provided a drilling tool for cutting a slot, comprising a geared drive shaft meshed with a gear cluster, each gear of the cluster being keyed to a respective drill bit, the arrangement being such that each drill bit can be rotated for drilling the slot by rotation of the drive shaft.

The invention thus provides a tool which can in one operation cut a slot of a required shape, as for example a straight slot or even curved slot.

Conveniently, the drive shaft may be integral with one of the bits such that the bit is rotated directly by it, and similarly the remaining bits may be integrally geared to their respective gears in the cluster. As an alternative, each bit may be releasably secured to a respective gear such that the depth of penetration of each bit can be adjusted and replacement of worn bits can also be effected.

The gear cluster may be contained within a housing, in which case the housing may conveniently be provided with an openable part for access to the gears and adjustment to each of the bits.

It will be appreciated that with the gears being in mesh, each bit is rotated in an opposite direction to that of an adjacent bit such that adjacent bits must be, respectively, left handed or right handed.

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

45 *Figure 1* is a front view of a joinery drilling tool according to the invention

Figure 2 is a plan view of the tool of *Figure 1*

Figure 3 is a sectional view along the lines A-A of *Figure 1*

50 *Figure 4* is a sectional view along the lines B-B of *Figure 1*.

The joinery drilling tool according to this embodiment of the invention comprises a drive shaft 1 on one end of which is integrally formed a drill bit 2. The drive shaft 1 is received centrally within an encasement 3 (shown in dotted outline) enclosing a gear cluster comprising a central gear 4 and side gears 5, 6, 7, 8, 9, and 10. The central gear 4 is releasably secured to the drive shaft 1 by a grub screw 11 received within a collar 12 fixed to the gear 4. In a similar manner side gears 5, 6, 7, 8, 9 and 10 are secured to respective drill bits 13, 14, 15, 16, 17 and 18. Each gear of the gear cluster is sandwiched between an upper bearing block 19 and a lower bearing block 20 such that the cluster is constrained

to remain in mesh. Above the upper bearing block 19 each drill bit is further secured to respective collar 21, 22, 23, 24, 25, 26 and 27, by respective grub screws.

70 Referring now to *Figures 3* and *4* of the accompanying drawings, it will be seen that the encasement 3 has a rectangular face plate 28 which is provided at each free end thereof with a tongue 29, 30 adapted to be received in correspondingly shaped grooves 31, 32 in the encasement 3. The face plate 28 is secured in position by screws (not shown) received in screw holes 28a.

In operation, the drive shaft 1 is secured to the chuck of a power drill in a conventional manner and the drill bits are aligned against e.g. a door in a suitable position for receiving a lock. Rotation of the drive shaft 1 by the power drill rotates the central drill bit 2 but since the side gears 5, 6, 7, 8, 9 and 10 are in mesh and each keyed to a respective drill bit 13, 14, 15, 16, 17 and 18, these drills are also rotated, although each one is rotated in an opposite direction to an adjacent bit. The joinery drilling tool is pressed into the door and hence a slot is cut which can then receive a lock.

90 In order to provide adjustment and even replacement of each drill bit, the face plate 28 can be removed as indicated to facilitate access to the grub screws on each collar of each gear. The depth of penetration of each drill bit can be adjusted by such grub screws and the grub screws on each of the collars above the encasement 3.

It will be appreciated that the embodiment described above is illustrative only and, for example, instead of the drive shaft being integral with a bit, it may be used simply to drive the gear cluster. Also, in order to locate the joinery drilling tool in a desired position on a door a clamp or bracket may be provided so as to prevent e.g. rotation of the drill by the power drill. Alternatively, a handle may be provided on the joinery drill.

CLAIMS

- 1) A drilling tool for cutting a slot, comprising a geared drive shaft meshed with a gear cluster, each gear of the cluster being keyed to a respective drill bit, the arrangement being such that each drill bit can be rotated for drilling the slot by rotation of the drive shaft.
- 2) A tool according to claim 1 in which the drive shaft is integral with one of the bits.
- 3) A tool according to claim 1 or claim 2 in which each bit is releasably secured to a respective gear.
- 4) A tool according to any preceding claim in which the gear cluster is contained within a housing.
- 5) A tool according to claim 4 in which the housing is openable for access to the gears and/or bits.
- 6) A tool substantially as hereinbefore described with reference to and as shown in the accompanying drawings.